AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A hybrid x-ray detector for use in imaging an object, comprising:

a first detector that is adapted to receive x-rays, said first detector absorbs a first portion of said x-rays and allows a second portion of said x-rays to pass through said first detector; and

a second detector that is adapted to receive said second portion of said x-rays;

wherein one of said detectors is an energy integrating detector configured to provide a high resolution image giving a principal view of the exposed object in response to said x-rays, and the other of said detectors is an energy discriminating detector configured to distinguish the energy spectrum of said x-rays incident thereon and to provide additional characterization information to said high resolution image in response to the same said x-rays; and

wherein said first and second detectors are arranged to be used together in a one-shot exposure to said x-rays.

2. (Currently Amended) The detector of claim 1, wherein said first detector is [[an]] said energy integrating detector and said second detector is [[an]] said energy discriminating detector.

3. (Original) The detector of claim 2, wherein said first detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.

4. (Original) The detector of claim 2, wherein said second detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.

5. (Original) The detector of claim 2, wherein said second detector is smaller than said first detector.

6. (Original) The detector of claim 2, wherein said first detector is thinner in an area that is not larger than said second detector.

7. (Currently Amended) The detector of claim 1, wherein said first detector is [[an]] said energy discriminating detector and said second detector is [[an]] said energy integrating detector.

8. (Original) The detector of claim 1, wherein said first detector is disposed adjacent to said second detector.

9. (Original) The detector of claim 1, wherein said first detector is fabricated on a substrate having a transmission of at least 80% of said first portion of said x-rays.

10. (Currently Amended) A radiation imaging system for use in imaging an object, comprising:

an x-ray source that produces x-rays; and

an image detector assembly that is adapted to receive said x-rays, said image detector assembly having a hybrid x-ray detector that includes:

a first detector that is adapted to receive said x-rays, said first detector absorbs a first portion of said x-rays and allows a second portion of said x-rays to pass through said first detector; and

a second detector that is adapted to receive said second portion of said x-rays;

wherein one of said detectors is an energy integrating detector configured to provide a high resolution image giving a principal view of the exposed object in response to said x-rays, and the other of said detectors is an energy discriminating detector configured to distinguish the energy spectrum of said x-rays incident thereon and to provide additional characterization information to said high resolution image in response to the same said x-rays; and

wherein said first and second detectors are arranged to be used together in a one-shot exposure to said x-rays.

11. (Original) The system of claim 10, further comprising a processor that receives data from said first detector and said second detector.

12. (Original) The system of claim 11, wherein said processor analyzes said data to produce at least one image.

13. (Original) The system of claim 12, further comprising an analysis of said at least one image to produce an analyzed image.

14. (Original) The system of claim 11, further comprising a display in communication with said processor.

15. (Currently Amended) The system of claim 10, wherein said first detector is [[an]] said energy integrating detector and said second detector is [[an]] said energy discriminating detector.

16. (Original) The detector of claim 15, wherein said first detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.

17. (Original) The detector of claim 15, wherein said second detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.

18. (Original) The system of claim 15, wherein said second detector is smaller than said first detector.

19. (Original) The system of claim 15, wherein said first detector is thinner in an area that is not larger than said second detector.

20. (Currently Amended) The system of claim 10, wherein said first detector is [[an]] said energy discriminating detector and said second detector is [[an]] said energy integrating detector.

21. (Currently Amended) A method of operating a hybrid x-ray detector for imaging an object, the method comprising:

receiving x-rays at a first detector;

absorbing a first portion of said x-rays;

passing a second portion of said x-rays through said first detector; ~~and~~

receiving said second portion of said x-rays at a second detector;

producing in response to a signal from one of said detectors a high resolution image giving a principal view of the exposed object; and

distinguishing in response to a signal from the other of said detectors the energy spectrum of said x-rays incident thereon, thereby providing additional characterization information to the high resolution image;

wherein said producing in response to a signal from one of said detectors, and said distinguishing in response to a signal from the other of said detectors, are responsive to the same one-shot exposure to said x-rays.

22. (Original) The method of claim 21, further comprising producing an image.

23. (Original) The method of claim 22, further comprising analyzing said image.

24. (Original) The method of claim 23, further comprising producing an analyzed image.

25. (Original) The method of claim 22, further comprising displaying said image.

26. (Currently Amended) The method of claim ~~23~~ 24, further comprising displaying said analyzed image.